
The Role of Co-creation Activities, Trust and Gender on Higher Education Marketing Performance

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Abstract:

This study attempts to analyze the effect of co-creation activities on satisfaction and its impact on loyalty, and to investigate the mediating role of co-creation value and trust, as well as the moderating role of personality traits and gender in higher education.

This study took the sample from graduate students of master's degree in management program or Master of Business Administration (MBA). There were 18 universities from 10 cities in Indonesia involved in this study. The survey comprised of 590 responses from students. The essential finding in this study confirms the effect of student co-creation activities on satisfaction and its impact on loyalty. Co-creation value and trust are found to be a partial mediation on the relationship between the co-creation and satisfaction.

Moreover, gender is the moderating factor of the relationship between co-creation activities and trust, yet personality trait is not as a moderating variable in the relationship. The findings imply that higher education needs to encourage co-creation activities and adapt the activities based on student gender.

Keywords: *S-D Logic, commitment-trust theory, personality traits, gender, co-creation activities, trust, satisfaction, higher education.*

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1. Introduction

The relationship between customers and the provider is no longer viewed as a single dyadic and director, but it is also viewed as multi-actors and multi-directors (Wieland *et al.* 2016). Not only can the customers act as co-producers such as creating value at design, development, manufacture, and delivery, but also act as value creators at consumption (creation of value-in-use) (Gronroos 2011). By this view, marketers need to consider how to optimize customer's participation in creating value through co-creation activities. Though it is still a relatively new concept, there have been some activities defined as co-creation activities, namely participation and extra-role behavior (Yi and Gong 2013).

Empirically, there are some gaps of research on the relationship between co-creation activities and marketing performance, satisfaction and loyalty. Currently, it still investigates less on how the effect of gender and personality traits (i.e. extroversion and agreeableness), in relation to co-creation activities and marketing performance. The study of customers' characteristics in co-creation issue is limited, for example, individualism and collectivity-distance power (Chan *et al.* 2010), especially in explaining the moderating role of the characteristics. In addition, in marketing literature, co-creation activities have been studied in several contexts, for example in banking services (Chan *et al.* 2010; Yim *et al.* 2012), medical services (McColl-Kennedy *et al.* 2012; Pinho *et al.* 2014), and government services (Säwe and Thelander 2015). However, they were still limited on investigating co-creation activities in higher education. Even though the education service can be one of the best representative examples of the value co-creation approach, when the students do not work on their own, they cannot get the result regardless their lecturer performance (Díaz-Méndez and Gummeson 2012). As such, research on learning in value co-creation is still rare in the co-creation study. Yet, it has been noted that learning plays an important role in the co-creation (Komulainen 2014).

Based on the gaps described above, this study has four objectives, namely to analyze the effects of co-creation activities on student satisfaction and its impacts on loyalty, to analyze the mediating role of co-creation value and trust in the correlation of co-creation activities and satisfaction; to analyze the moderating role of gender and agreeableness trait on the relationship of co-creation activities and trust; and to analyze the moderating role of extroversion trait in the relationship of co-creation activities and value.

2. Conceptual Development and Hypotheses

2.1 The role of Co-creation Activities

Empirically, the relation between co-creation activities and value can be traced from several studies confirming the effect of customer involvement on value. It was found that customers' involvement provides economic, relational (Chan *et al.* 2010), and

enjoyment value (Sultan and Wong 2012). Likewise, it was also found that co-creation creates economic benefits namely better growth for company (Syvertsen 2012). Evaluating the product performance has also some benefits (Troye and Supphellen 2012) such as learning, integration between individual and social, and hedonic (Nambisan and Baron 2009). Accordingly, customers' involvement provides functional, relational and hedonic values, in various stages of transactions and types of services.

In service recovery, co-creation activities allow customers to help customizing the service with their experience, and it can affect customer satisfaction with better recovery efforts (Roggeveen *et al.* 2012). In the same context, participation makes customer more satisfied because they feel to be involved so that it encourage them to evaluate the outputs positively (Dong *et al.* 2008). Co-creation allows marketers to do their own marketing, to exchange information of production, technology, and risk with customers, and also to offer access to brand experiences, therefore it make both marketer and customer satisfaction (Spena *et al.* 2012).

The customers' co-creation activities have a relationship with trust, which can be traced from both conceptual and empirical studies in the marketing literature. Trust occurs when someone believes in a person or partner's integrity and reliability (Morgan and Hunt, 1994). Conceptually, there is a relationship between the customer engagement and trust. It is argued that the high consumer engagement can increase trust because it shows that the provider cares for the customers' needs (Vivek *et al.* 2012). In the context of higher education, the students' co-creation activities involve the students, between students and lecturers to enable students to construct experience, define and solve problems together, create an environment of experience in which the students can actively engage in dialogue with the emphasis on variations of experiences (Prahalad and Ramaswamy 2004). Based on such empirical evidences, the following hypothesis is asserted.

Hypothesis 1: Student co-creation activities in learning positively influence student co-creation value.

Hypothesis 2: Student co-creation activities in learning positively influence student satisfaction toward their lecturers.

Hypothesis 3: Student co-creation activities in learning positively influence student trust towards their lecturers.

2.2 Student Co-creation Value and Trust

Several studies, in the literature, show that co-creation value can ultimately affect marketing performance in the form of customer satisfaction. Studies on the value of engagement and interaction between customers and marketers show a positive relationship between the benefits of customer engagement and satisfaction, including the customers' satisfaction and the provider satisfaction (Chan *et al.* 2010; Yim *et al.*

2012). Another study shows that customer participation can improve the service quality, which will further increase customer satisfaction (Cermak *et al.* 1994). The higher the value of exchange, the more the satisfaction is (Chan *et al.* 2010).

The positive relationship between trust and satisfaction can also be found in some previous studies. For example, Dickey, McKnight, & George (2007) on the relationship between the types of beliefs, attitudes, and behavior towards franchisor showed that trust on individual's competence and honesty affects the level of satisfaction. Trust eventually lead customer opinion that their expectation is fulfilled, anxiety and risk perceptions is reduced, and what to expect in known (Chiou and Droge 2006). Several studies also support a positive relationship between trust and the providers and customer satisfaction (Farrelly and Quester 2005). Accordingly, the hypothesis in relation to this argument can be stated as the following.

Hypothesis 4: Student co-creation values in learning positively influence student satisfaction toward the lecturers.

Hypothesis 5: Student trust on the lecturers positively influences student satisfaction toward the lecturers.

2.3 Satisfaction and Loyalty

The relationship between satisfaction and loyalty is a relatively well-established in marketing literature, in which, customer satisfaction positively affects loyalty. For example, (Bontis *et al.* 2007) confirmed that satisfaction increases loyalty and reputation, and subsequently leads to a strong recommendation. Agrawal, Gaur, & Narayanan (2012) in the review of literature showed that satisfaction is a determinant of customer loyalty. In the context of higher education, Ueda & Nojima (2012) confirmed that students who are satisfied will speak positively about their campus, recommend to friends and family, and care about the reputation of the college. Thus, the hypotheses regarding satisfaction and loyalty can be stated as follows:

Hypothesis 6: Student satisfaction towards their lecturers positively influences student loyalty towards their study program.

2.4 Personality Traits Effect

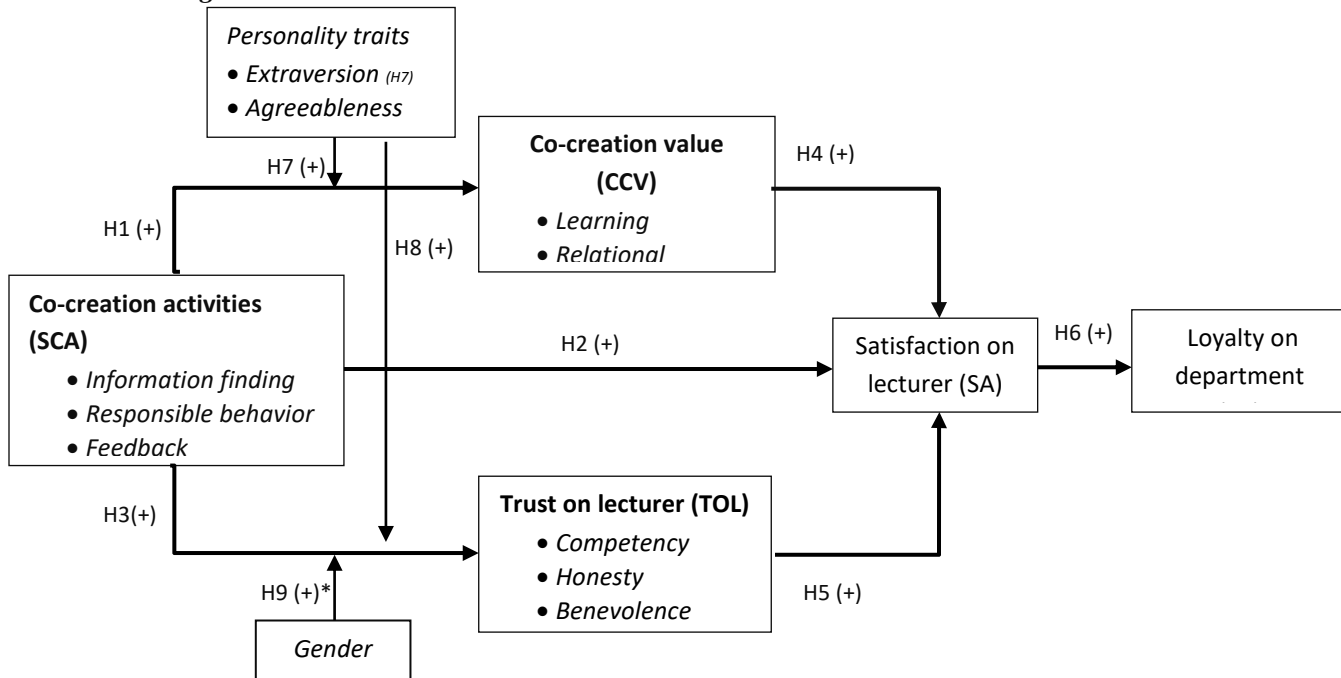
From several empirical studies, researchers can understand the moderation role of personality trait extraversion in the relationship between the co-creation activities and co-creation value. Extroversion person reflected in enjoying to socialize allows a person to communicate and interact with other people (John and Srivastava 1999) and it can provide benefits or values to such person. Yiu & Lee (2011) found that extroversion can significantly moderate the relationships of negotiating behaviors and negotiation outcomes, in which it shows that extroversion assists and facilitates communication and interaction. Also, extroversion personality can positively

influence subjective norms to the intention to use traditional technology, where it is due to a more extroverted being sensitive to self-image and social consequences (Devaraj *et al.* 2008). In this study, the students' co-creation activities in learning are a social transaction activity. Thus, it is much more influenced by the aspects of each party's personality that is involved. Accordingly, the nature of the student's personality can also affect the relationship between the co-creation activities and value co-creation for students. The nature of agreeableness personality provides a positive reinforcement for the relationship between the customer co-creation with trust. This can be understood by basing on several studies. In analyzing the conflict, Jensen-Campbell & Graziano (2001) found that high hospitality moderating affective response in a conflict and the choice of settlement. Someone kindly prefers the less compromise and choose the way of destruction. In this case, a friendly person is associated with the desire to maintain positive interpersonal relationships so that they easily trust and cooperate. Taormina & Sun (2015), in a Chinese community, found that a person with high hospitality tends to have a high level of trust towards others. This is due to having consideration on friends and trustworthy. Thus, the research hypothesis can be stated as follows:

Hypothesis 7: The higher the student personality tendency towards extroversion, the higher the effect of students' co-creation activities toward their co-creation value.

Hypothesis 8: The higher tendency towards agreeableness, the higher effect of student co-creation activities toward trust.

Figure 1. Research Model



2.5 Moderating effect of gender

There was gender study associated with trust and it was found that men believe more in people who have an identity and the same group (collective self), while women have more trust on people who have a direct relationship (relational self) (Maddux and Brewer 2005). The arguments related to gender moderation roles towards the effect of co-creation activities and trust can be traced in some previous studies. Porter *et al* (2012) with a social role theory approach confirmed the role of gender moderation for the influence of the effort to improve the quality content that encourages interaction and trust in a company-sponsored virtual community. It showed that the effort to provide quality content affects the trust that only occurs in members of the man community while the effort to provide content that encourages interaction affects trust only in woman communities. This is because of the different orientation where the male orientation of using the internet is for their main job (self-directed task), while the female is for personal connectivity and self-searching (the female-oriented value). Based on the arguments above, the hypothesis can be stated as follows.

Hypothesis 9: The effect of student's co-creation activities on trust towards lecturers depends on gender, in which the effect on male is higher than that on female students.

3. Research Methods

3.1 Sample and procedure

This study took the sample from graduate students of master's degree in management program or Master of Business Administration (MBA). The management study program is an accredited study program with A status of accreditation from National Accreditation Board of Higher Education (BAN-PT), Indonesia. It used a two-stage sampling, i.e., the first stage of sampling was at study program level using probability sampling and the next stage was at the respondent level using judgment sampling. There were 18 universities from 10 cities in Indonesia involved in this study. The survey comprised of 590 responses from 890 distributions, of which, 72 of them contained a large number of missing data, confusing, and therefore, removed when they were for further data analysis. The sample consisted of 50.4 percent of male participants and 49.6 per cent female participants. They are more than half on the 3rd semester (51.6 per cent), and the majority is under 30 years (59.4 per cent). In terms of occupation, mostly are professionals (44.7 per cent), and those with their own responsibility are the greatest proportions (47.2 per cent).

3.2 Measures

The research instrument comprises a structured questionnaire, in which the items were adapted from the literature. The 14 items to measure co-creation activities were developed from Yi & Gong (2013) comprising of four dimensions (information finding, responsible behavior, feedback and helping), while 10 items for co-creation value measures were adopted from some studies (Chan, Yim, & Lam, 2010; Nambisan & Baron, 2009; Yim, Chan, & Lam, 2012) consisting of three dimensions (enjoyment, relational and learning value). Moreover, student trust on lecturers measure consists of 10 items obtained from Morgan & Hunt (1994) and Casaló et al. (2008) composed of three dimensions (trust on competency, honesty and benevolence). Satisfaction on lecturers consists 5 items derived from Chan *et al.* (2010), and loyalty measure adopts 4 items derived from Zeithaml, Berry, & Parasuraman (1996), and Srinivasan, Anderson, & Ponnnavolu (2002). To measure the constructs, the researchers used seven-point Likert scales (1=strongly disagree and 7 = strongly agree). Personality trait was assessed by two relevant traits, i.e. extroversion (four items) and agreeableness (five items). The items was adopted from the International Personality Item Pool (<http://ipip.ori.org>) developed by Goldberg & R. (1992) and Donnellan, Oswald, Baird, & Lucas (2006), and used seven-point scales (1= very inaccurate and 7= very accurate). This study uses three control variables in the model, namely semester, type of university (public or private), and student age.

3.3 Measurement Model

In developing the instrument quality, the reseacrhrs used validity and reliability analysis. The convergent validity was determined based on the loading factor, in which the cut of value is higher 0.6 significance (Fornell and Larcker 1981), and on the Average Variance Extracted (AVE), in which the acceptance limits is higher than 0.5 (Fornell and Larcker 1981), as well as the discriminant validity was estimated by the square root of AVE (Fornell and Larcker 1981). The reliability analysis was analized by Composite reliability and Cronbach alpha (Hair et al. 2010). Based on the analysis, all of the items and constructs have met the expected requirements, in which the analysis results can seen on Table 1.

3.4 Structural Model

The results of structural model estimation were illustrated in Figure 2. The figure explains some information; first, the loading factor of all indicators in constructs is above 0.6, where the score of each construct indicates how important the construct indicators is. Second, the hypothesis testing of six hypothetical regressions (H1 to H6) shows the significance level of $p < 0.01$. Third, the hypothesis testing of moderation relationship (H7, H8 and H9) indicates that gender (H9) was accepted with the significance level of $p < 0.05$, and the two hypotheses moderation of personality traits (H7 and H8) were not accepted with the significance level of $p < 0.5$. Finally, the regression coefficient (β) in the model (H1 to H6) stretch of

$\beta=0.17$ (for co-creation to satisfaction) to $\beta=0.62$ (for co-creation activities to co-creation value).

3.5 Hypothesis testing

The hypothesis testing on the proposed model shows that all paths are statistically significant and in the expected direction. Therefore, it supports all hypotheses, except on moderation hypothesis of personality traits. Specifically, hypothesis 1 confirms that student co-creation activities positively affect co-creation value ($\beta = 0.62$; $p < 0.01$); accordingly, Hypothesis 1 is supported. Statistical testing on Hypothesis 2 indicates that student co-creation activities positively effect on student satisfaction ($\beta = 0.17$; $p < 0.01$), or it can be said hypothesis 2 is supported. Further, statistical testing on hypothesis 3 shows that student co-creation activities positively effect on student trust on lecturers ($\beta = 0.48$; $p < 0.01$); therefore, Hypothesis 3 is supported. The result supports hypothesis 4 ($\beta = 0.18$; $p < 0.01$) showing that co-creation value positively affects student satisfaction, and confirms hypothesis 5 ($\beta = 0.48$; $p < 0.01$) indicating that trust positively affects satisfaction; therefore, Hypothesis 4 and 5 are supported. Analyses on the mediating role of co-creation value and trust (Baron and Kenny 1986; Kock 2014a) indicate that both of them partially mediate the relationship of co-creation activities and satisfaction. Moreover, the analysis also supports hypothesis 6 ($\beta = 0.57$; $p < 0.01$) stating that higher level of satisfaction to lecturers, higher level of loyalty to study program. Hypothesis 7 and 8 analyze the moderation effect of extroversion and agreeableness, and show that both of these hypotheses are not supported ($\beta = 0.02$; $p = 0.29$ and $\beta = 0.01$; $p = 0.42$, respectively). Additionally, hypothesis 9 states that there is an effect of co-creation activities on trust and it depends on gender, where the influence on male was higher than females. The testing of the hypothesis was done by dividing and comparing the sample into two groups (Zboja and Voorhees 2006) and by Pooled Standard Error Method and Method Satterthwaite approach (Kock 2014b). The comparison showed the differences of effects ($p = 0.032$) between male ($\beta = 0.555$; $SE = 0.057$) and female students ($\beta = 0.403$; $SE = 0.059$), or it can be concludes that hypothesis 9 is supported.

Table 1. Discriminant Validity (Square root AVE) and Reliability

Construct	Cod e	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Information Finding ²	IF	.71																
2. Responsible Behavior ²	RB	.42	.75															
3. Feedback ²	FB	.61	.44	.81														
4. Helping ²	HP	.44	.39	.45	.90													
5. Enjoyment value ³	NK	.35	.36	.44	.28	.79												
6. Relational value ³	RE	.43	.40	.57	.38	.60	.85											
7. Learning value ³	LR	.41	.49	.50	.34	.59	.66	.90										
8. Trust on competencies ⁴	KM	.32	.42	.30	.21	.37	.46	.51	.83									
9. Trust on honesty ⁴	KJ	.33	.42	.33	.20	.33	.45	.46	.71	.89								
10. Trust on benevolence ⁴	KB	.33	.35	.36	.19	.27	.41	.36	.45	.49	.75							
11. Satisfaction on lecturer	SA	.42	.45	.43	.29	.36	.53	.55	.63	.62	.41	.88						
12. Loyalty	LA	.34	.38	.41	.25	.35	.47	.46	.52	.48	.30	.57	.88					
13. Extroversion	EI	.32	.25	.34	.27	.39	.45	.35	.22	.28	.26	.30	.29	.72				
14. Agreeableness	AA	.24	.29	.25	.42	.23	.33	.29	.21	.29	.23	.30	.26	.45	.74			
15. Co-creation activities ¹	SC A ¹	.81	.72	.82	.73	.47	.58	.57	.40	.41	.40	.51	.45	.38	.38	.77		
16. Co-creation value ¹	CC V ¹	.48	.53	.59	.40	.81	.85	.86	.57	.51	.43	.60	.51	.45	.34	.65	.80	
17. Trust on lecturer ¹	TO L ¹	.39	.47	.39	.24	.39	.52	.53	.87	.89	.75	.67	.52	.30	.29	.48	.60	.84
Composite Reliability	CR	.81	.84	.86	.92	.87	.89	.93	.9	.92	.80	.93	.93	.81	.86	.85	.88	.88
Cronbach Alpha	A	.68	.75	.74	.88	.8	.81	.89	.85	.87	.61	.90	.90	.69	.79	.77	.82	.79
Average Variances Extracted	AV	.51	.57	.66	.8	.63	.72	.82	.69	.79	.56	.77	.77	.52	.55	.6	.65	.71

E																		
Number of items	-	4	4	3	3	4	3	3	4	3	3	4	4	4	5	4	4	3

Notes :

- a. ¹= The 2rd order CFA, ²= The 1st order Confirmatory Factor analysis (CFA) of co-creation activities; ³ = The 1st order CFA of co-creation value; ⁴= The 1st order CFA of trust on lecturers;
- b. Overall correlation between the constructs have p <0.0001
- c. Scores show pairwise correlations between constructs, while the diagonal score (bold) indicates the square root AVE.

4. Discussion

4.1 The role of co-creation activities on value

The role of co-creation activities demonstrated their effect on co-creation value in the form of student learning, relational value, and enjoyment. The interaction between students and lecturers, in which students are getting close to their lecturers and enjoying the lectures so that this makes such activities generate some benefits for students. Of the three dimensions of co-creation activities, it suggests a feedback in the form of conveying an idea of what is taught, giving feedback, and informing difficulties that are the most important in co-creation activities. These findings confirm the previous studies, for instance: Chan *et al.* (2010) found that customer involvement provides relational value for customer; and Yim *et al.* (2012) confirmed that customer participation affects relational and enjoyment value.

In relation to co-creation activities, this study provides additional explanation for the previous studies. The finding explains co-creation activities as customer involvement in S-D logic perspective in especially higher education. The services representation is appropriate in co-creation study because university's products or services of co-created learning product (Lusch and Wu 2012). This study also shows that feedback activity is the more important effect on co-creation value. Moreover, the study also describes that learning value becomes the most dominant values created by co-creation activities.

4.2 The role of co-creation activities on satisfaction

This study confirmed that the increase of co-creation activities, i.e. information finding, responsible behavior, providing feedback, and helping, will increase student satisfaction towards their lecturers. By co-creation activities, students tend to judge positively the learning output because they consider the output as a part of their contributions. In addition, learning services delivered by lecturers will be more adaptive to student needs. Furthermore, by students and lecturers interaction reflected in co-creation activities of knowledge transformation, it can induce the relationship performance as an important element in assessing the student satisfaction. Thus, co-creation is not only generating positive feelings but also creating the perceived partnership feeling of students on their lecturers.

The results in this study are consistent with the previous studies in literature. For example, it supports the effect of customer engagement on customer satisfaction. As it was argued by Dong *et al.* (2008) who described that customer involvement increases satisfaction because they judge that their efforts could produce services outputs. For that reason, they would also judge the output positively. Another argument is that co-creation allows customers to help shaping and customizing services to their needs (Roggeveen *et al.* 2012); and co-creation enables services

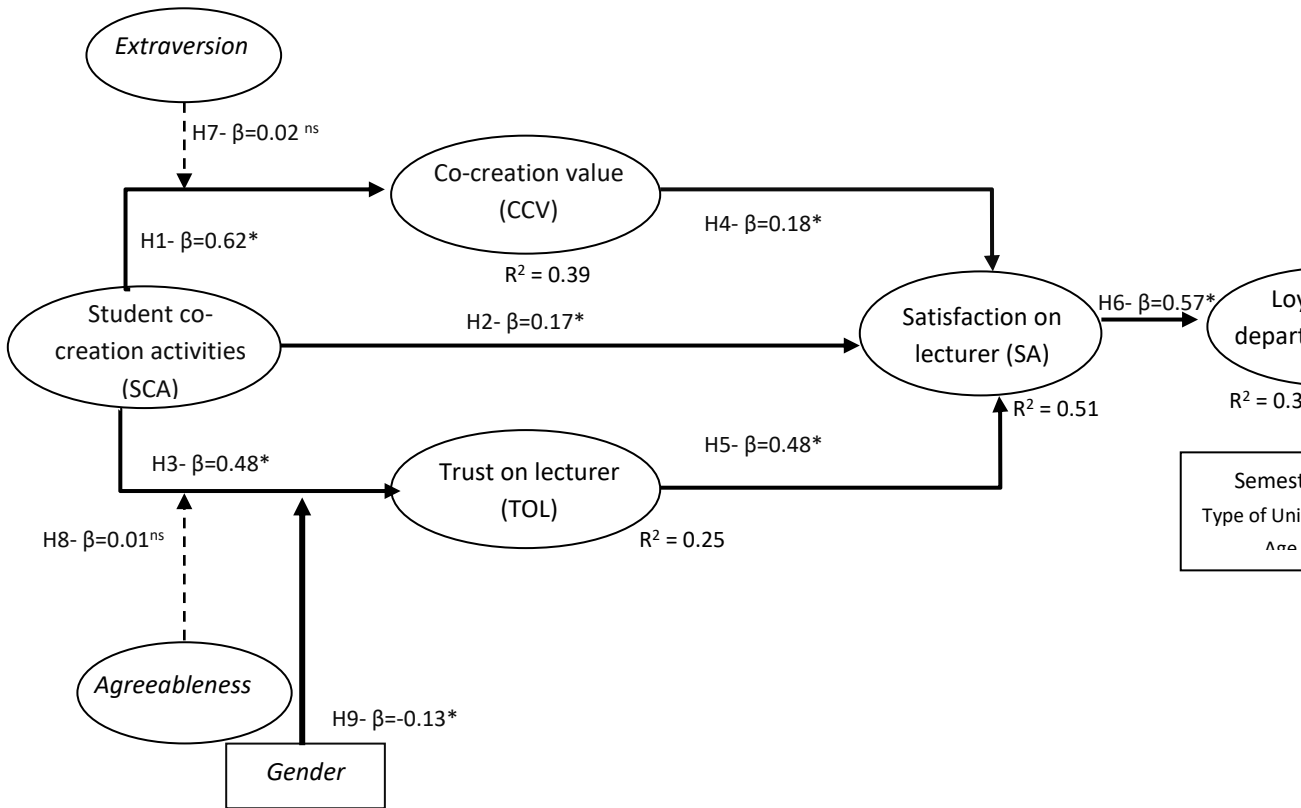
being adaptive to customer needs (Vega-Vazquez *et al.* 2013). In addition, this study confirms the S-D Logic perspective, especially on the 7th premise stating that actors cannot deliver value, but they can participate in creating and offering value propositions (Vargo and Lusch 2016). In this study, the premise is demonstrated by the activity of delivering value proposition by lecturers, and consequently the proposition is co-created by students through the activity of getting information, doing responsible behavior, providing feedback and helping. Consequently, the activities affect student satisfaction.

4.3 The role of co-creation activities on trust

The finding described that the increase of co-creation activities –information finding, responsible behavior, feedback, and help– can also increase student trust on the lecturers' honesty, capability, and benevolence. By co-creation activities, students can get knowledge about their lecturers' skills, knowledge, honesty, caring, and benevolence in which this knowledge would help them to adapt their activities to the universities. The interaction with lecturers will make student easily to get help, support and care, and it mean uncertainty in learning is reduced. The finding related to the effect of co-creation activities on trust that is consistent with the previous studies. In relation to the above evidence, Flavia *et al.* (2007) argue that customer engagement activity through interaction with providers will enhance product knowledge, make more familiar, and can overcome problems related to product, so that uncertainty can be reduced. Furthermore, customers support and advice to providers will affect the product development decisions, so that product will meet customer needs. Vivek *et al.* (2012) argued that by engagement, customers would find that their providers would care to their benefit. Additionally, Dabholkar & Sheng, (2012) in online recommendation agent context argued that the increased involvement, interaction, and dialogue with providers would improve customer understanding of why and what aspects of services, so that it would increase customers' trust on providers.

4.4 Co-creation value on satisfaction

The analysis of the role of co-creation value describes that the increase of student learning, relational values, and enjoyment will also increase student satisfaction. This is understandable because the increased benefits means student expectations are fulfilled or satisfaction is increased. Learning value is the highest value affecting the student satisfaction, which confirm that learning is the main objective of students getting higher education services. In addition, the finding shows that co-creation value mediates partially on the relationship of co-creation and satisfaction.



Note: * = significant ($p < 0.05$); ns = not significant

Figure 2. The Path Model

It means the effect of co-creation activities on satisfaction not only occur directly, but also could take place through the mediation of co-creation value. The findings are consistent with Yim et al. (2012) study describing that enjoyment value is an intrinsic requirement and a critical value for the positive evaluation of product and the provider. Even if there are possibilities of co-destruction of value, but economic and relational value in exchange are important for predicting customer satisfaction (Plé & Cáceres, 2010), Benefits contribution, marketer's competence, and knowledge from interaction with provider have a positive influence on satisfaction and word-of-mouth communication (Maru File *et al.* 1992). Finally, in other services, Wu (2014) confirms that high perceived value is the main determinant factor for customer satisfaction.

In reference to the mediation role of co-creation value, this study is consistent with the study in financial services. The values mediate the relationship of choice and satisfaction, and individual value is the most powerful influence on satisfaction (Flores and Vasquez-Parraga 2015). Chan *et al.* (2010) finding supports the

mediating role of customer value in relation to participatory activities and satisfaction, where economic and relational values have a mediating role for customer satisfaction. This can be understood because customer engagement is not only providing value to customer, but also reducing service failure risk, providing input opportunities for the provider, and allowing customer to control service process and output.

4.5 The role of trust on satisfaction

The research finding demonstrated that the increasing trust will also increase student satisfaction towards their lecturers. This is understandable because the increasing trust means reduced anxiety, uncertainty, and risk, as well as students become confident and meet their expectations. Trust dimension contributing to satisfaction is honesty followed by capability and benevolence of lecturers. This shows that honesty is the main aspect in enhancing trust on learning. These findings support the previous studies, for example, the study on the relationship between type of trust and behavior towards franchisor showed that trust on competence and honesty affects the level of satisfaction (Dickey *et al.* 2007).

Trust also has an effect on satisfaction of customer who has high or low experience on online shopping (Pappas *et al.* 2014). Furthermore, in the context of the relationship between universities and industries, Plewa & Quester (2007) found that trust is the main predictor of satisfaction, because it reduces uncertainty and risk in relationship. Also, this study is consistent with Chiou & Droge (2006) who argue that trust will eventually lead to the fulfilling of customer expectation, reducing anxiety and risk perception, increasing confidence, and knowing what is expected. Additionally, this study also showed that trust partially mediate the relationship of co-creation activities and satisfaction. It means the effect of co-creation on satisfaction not only is mediated by trust, but also can occur directly to satisfaction. This findings also support the relationship marketing theory (Morgan and Hunt 1994) stating that trust (and commitment) is a mediating variable for a long-term relationship.

4.6 The role of Satisfaction on Loyalty

The finding of this research reveals the positive effect of satisfaction on student loyalty, which is reflected in recommending to others, saying positive things about services, and encouraging others. Student experiences for creating satisfaction will also improve their commitment to their lecturers. The relationship of satisfaction and loyalty is consistent with Ali, Zhou, Hussain, Nair, & Ragavan (2016), in which satisfaction and image affects the student loyalty. Furthermore, this study also support other study, i.e. Yu & Dean (2001) at university in Australia analyzing the relationship of satisfaction and loyalty from cognitive component of satisfaction. Thus, the finding related to satisfaction and loyalty confirms the findings of the previous studies.

4.7 The role of Personality Traits and Gender

The moderating role of personality traits in this study is not supported, either on extroversion and agreeableness. On extroversion traits, this study indicates no moderating effect on the relationship between co-creation activities and value, meaning that co-creation effects does not depend on whether the students are as extrovert or introvert. This is likely due to the age's aspect. The older the person's age, their extroversion trait tend to increase, because they will be more mature and stable. Moreover, the similar finding is on agreeableness traits, in which the effect of co-creation on trust does not depend on whether the students are high or low agreeableness. It is also probably due to the age factor, where the older the age, the more friendly they are. This finding is consistent with the previous study confirming that age positively relates to agreeableness (Donnellan and Lucas 2008).

The findings reveal the moderating role of gender on the relationship of co-creation activities and trust. The effect of co-creation on trust depended on gender, in which the male is higher than female students. The argument of the finding is due to the different characteristics of male and female in activities or decision making, in which male is more likely to prioritize their ratio or logic, while female emphasizes on their feelings or emotions (Acedo *et al.* 2007). This findings is consistent with Porter *et al.* (2012) stating that male was searching information and knowledge to support their responsibilities, i.e., decision-making and problem solving (self-directed task), whereas female was to promote relationships, interpersonal connectivity, quality of conversation and information, and emotional appeal (the female-oriented value). Furthermore, on sociocultural perspective, female was more oriented on communal role, while male was on agentive role (Balliet *et al.* 2011). Accordingly, the co-creation activities are perceived by male students more as agentive role compared with communal role.

These findings also support the social role theory of gender in co-creation activities. Social role theory explains why male and female have a tendency to behave differently in which it is due to the result of the division of male and female roles in society (Eagly *et al.* 2003). The main cause of this difference is the physical differences causing a certain activity that can be done more efficiently by specific sex or the other, depending on the state of society and culture (Wood and Eagly 2002). In this study, male and female have differences in how the effect of co-creation on trust due to their different characteristic. Additionally, this findings support the fifth axiom of S-D Logic perspective stating that value is always uniquely determined by the recipients (Vargo and Lusch 2016).

5. Conclusion

First, co-creation activities positively affect student satisfaction towards their lecturers, and subsequently the satisfaction affects their loyalty. This study describes

in broader sense in the use of customer engagement, i.e. student co-creation activities, compared with the previous studies. In addition, the finding shows that the feedback is the salient dimension of student co-creation activities which can affect their satisfaction.

Second, co-creation value and trust mediate the relationship between co-creation activities and student satisfaction. Thus, the role of learning, relational values, and enjoyment, as well as the role of student trust towards their lecturers' honesty, capability, and benevolence are also the important determinants for student satisfaction.

Third, the finding also confirms the moderating effect of gender on the relationship between co-creation activities and trust. Based on this evidence, higher education needs to distinguish their lecture activities based on student gender; in which male students are appropriate for being directed to problem solving approach while female students are compatible to be guided to relational approach. *Finally*, there is no support for moderating effect of extroversion trait on the relationship between co-creation activities and value, and of agreeableness trait on the relationship between co-creation activities and trust.

5.1 Managerial implications

Practical recommendation of this study consists of the need to encourage student co-creation activities, and to adapt the activities with gender in order to enhance student value, trust, and satisfaction. Higher education needs to encourage student co-creation on the activities of giving feedback, helping finding information, and being responsible for their behavior. Adapting co-creation activities towards gender can be directed to customize the activities for male and female students. The study recommends that higher education differentiate co-creation approach for both male and female students. Male co-creation activities are more oriented in decision-making role, whereas female co-creation activities are more on nurturing interactions and relationships role.

5.2 Limitations and future research

The study inevitably has some limitations that need to be addressed for further research. First, the personality traits, i.e. extroversion and agreeableness were measured by a limited number of items. Therefore, further research is expected to use more complete measurements to get more detail of the constructs and respondent personality. Second, there are different ways of collecting data among MBA programs that depend on the permit and policy of each the programs. Finally, further research also needs to address such issues in order to explain the situational description of co-creation activities in wider sense.

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